APPENDIX 4
Acronyms and Glossary

Acronyms

ARC	American Red Cross
BFE	Base Flood Elevation
CFR	Code of Federal Regulations
CRS	Community Rating System program
CTP	Cooperative Technical Partners
DFIRM	Digital Flood Insurance Rate Map
DMA	Disaster Mitigation Act of 2000
EMA	Louisville Metro Emergency Management Agency
EMS	Jefferson County EMS
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
FWEEP	Flood Warning and Emergency Evacuation Plan
GIS	Geographic Information System
GLAR	Greater Louisville Board of Realtors
HAZUS- MH	Hazards US - Multi-Hazard
HMGP	Hazard Mitigation Grant Program
IPL	Louisville Metro Dept of Inspections, Permits and Licenses
JCPS	Jefferson County Public Schools
KIPDA	Kentuckiana Regional Planning & Development Agency
KyEM	Kentucky Division of Emergency Management
LEPC	Local Emergency Planning Committee
L G & E	Louisville Gas and Electric
LOJIC	Louisville/Jefferson County Information Consortium
LWC	Louisville Water Company
MSD	Louisville & Jefferson County Metropolitan Sewer District

NCDC	National Climatic Data Center
NFIP	National Flood Insurance Program
NRCS	Natural Resources Conservation Service
NWS	National Weather Service
PDM	Pre-Disaster Mitigation, national grant program
PVA	Jefferson County Property Valuation Administrator
SHMO	State Hazard Mitigation Officer
USACE	U. S. Army Corp of Engineers
USGS	U. S. Geological Survey
U of L	University of Louisville

GLOSSARY OF TERMS

This resource defines terms that are used in, or support, the planning document.

100-year flood – A flood that has a 1 percent chance of being equaled or exceeded in any one year. This flood event is also referred to as the base flood. The term "100-year flood" can be misleading. It is not the flood that will occur once every 100 years. Rather, it is the flood elevation that has a 1 percent chance of being equaled or exceeded each year. Thus, the 100-year flood could occur more than once in a relatively short period of time. The 100-year flood, which is the standard used by most Federal and state agencies, is used by the National Flood Insurance Program (NFIP) as the standard for floodplain management and to determine the need for flood insurance.

500-year flood – A flood that has a 0.2 percent chance of being equaled or exceeded in any one year.

Aggregate Data – Data gathered together across an area or region (for example, census tract or census block data).

Annualized Loss – The estimated long-term value of losses from potential future hazard occurrences of a particular type in any given single year in a specified geographic area. In other words, the average annual loss that is likely to be incurred in each year based on frequency of occurrence and loss estimates. Note that the loss in any given year can be substantially higher or lower than the estimated annualized loss.

Annualized Loss Ratio – Represents the annualized loss estimate as a fraction of the replacement value of the local building inventory. This ratio is calculated using the following formula: Annualized Loss Ratio = Annualized Losses / Exposure at Risk. The annualized loss ratio gauges the relationship between average annualized loss and at-risk building value. This ratio can be used as a measure of relative risk between hazards as well as across different geographic units.

Asset – Any manmade or natural feature that has value, including, but not limited to people, buildings, infrastructure (such as bridges, roads, and sewer and water systems), and lifelines (such as electricity and communication resources; or environmental, cultural, or recreational features like parks, dunes, wetlands, or landmarks).

At Risk – Exposure values that include the entire building inventory or population value in a census block or tract that lie within, or bordering the inundation areas or any area potentially exposed to a hazard based on location.

Base Flood – Flood that has a 1 percent probability of being equaled or exceeded in any given year. It is also known as the 100-year flood.

Base Flood Elevation (BFE) – Elevation of the base flood in relation to a specified datum, such as the National Geodetic Vertical Datum of 1929. The BFE is used as the standard for the National Flood Insurance Program.

Building – A structure that is walled and roofed, principally above ground and permanently fixed to a site. The term includes a manufactured home on a permanent foundation on which the wheels and axles carry no weight.

Census Block– A subdivision of a census tract (or, prior to 2000, a block numbering area), a block is the smallest geographic unit for which the U.S. Census Bureau tabulates 100-percent data. Many blocks correspond to individual city blocks bounded by streets, but blocks – especially in rural areas – may include many square miles and may have some boundaries that are not streets.

Census Tract – A small, relatively permanent statistical subdivision of a county delineated by a local committee of census data users for the purpose of presenting data. Census tract boundaries normally follow visible features, but may follow governmental unit boundaries and other non-visible features in some instances; they always nest within counties. Designed to be relatively homogeneous units with respect to population characteristics, economic status, and living conditions at the time of establishment, census tracts average about 4,000 inhabitants. They may be split by any sub-county geographic entity.

Critical Facility – Facilities that are critical to the health and welfare of the population and that are especially important following a hazard. Critical facilities include essential facilities, transportation systems, lifeline utility systems, high-potential loss facilities, and hazardous materials sites. As defined for the Louisville Metro risk assessment, this category includes: schools, hospitals, fire stations, police stations, and hazardous materials sites.

Content Value – The value of a building's content include all the items in a building, excluding the structure itself. The values are estimated to be 50 percent of the residential structural value and 100 percent of the commercial building replacement value.

Digital Elevation Model (DEM) – U.S. Geological Survey (USGS) Digital Elevation Model (DEM) data files are digital representations of cartographic information in a raster form. DEMs include a sampled array of elevations for a number of ground positions at regularly spaced intervals. These digital cartographic/geographic data files are produced by USGS as part of the National Mapping Program.

Displacement Time – After a hazard occurs, the average time (in days) that a building's occupants must operate from a temporary location while repairs are made to the original building due to damages resulting from the hazard.

Disaster Mitigation Act of 2000 (DMA 2000) – Law that requires and rewards local and state pre-disaster planning, promotes sustainability as a strategy for disaster resistance, and is intended to integrate state and local planning with the aim of strengthening statewide mitigation planning.

Drought – A period of time without substantial rainfall that persists from one year to the next. Droughts can affect large areas and can impact areas that range from a few counties to several states. Along with decreasing water supplies for human consumption and use, droughts can kill crops, livestock, grazing land, edible plants, and even, in severe cases, trees.

Duration – The length of time a hazard occurs.

Earthquake – A sudden motion or trembling that is caused by a release of strain accumulated within or along the edge of earth's tectonic plates.

Economic Loss Ratio – The estimated value of the loss divided by the total inventory value. This represents the percent of the total occupancy class inventory value that likely would be incurred to repair or restore the facility to its original, pre-hazard state. A loss ratio of less than 1 percent is considered to be a very low risk; 1 to 5 percent to be low; 5 to 20 percent to be medium; 20 to 40 percent to be high; and greater than 40 percent to be very high.

Erosion – Wearing away of the land surface by detachment and movement of soil and rock fragments, during a flood or storm or over a period of years, through the action of wind, water, or other geologic processes.

Erosion Hazard Area – Area anticipated to be lost to shoreline retreat over a given period of time. The projected inland extent of the area is measured by multiplying the average annual long-term recession rate by the number of years desired.

Essential Facility – A facility that is important to ensure a full recovery of a community or state following the occurrence of a hazard. These facilities can include government facilities, major employers, banks, schools, and certain commercial establishments (such as grocery stores, hardware stores, and gas stations).

Exposure – The number and dollar value of assets that are considered to be at risk during the occurrence of a specific hazard.

Extent – The size of an area affected by a hazard or the occurrence of a hazard.

Federal Emergency Management Agency (FEMA) – Independent agency (now part of the Department of Homeland Security) created in 1978 to provide a single point of accountability for all Federal activities related to disaster mitigation and emergency preparedness, response, and recovery.

Flash Flood – A flood occurring with little or no warning where water levels rise at an extremely fast rate.

Flood – A general and temporary condition of partial or complete inundation of normally dry land areas resulting from (1) the overflow of inland or tidal waters, (2) the unusual and rapid accumulation or runoff of surface waters from any source, or (3) mudflows or the sudden collapse of shoreline land.

Flood Depth – Height of the flood water surface above the ground surface.

Flood Elevation – Height of the water surface above an established datum (for example, the National Geodetic Vertical Datum of 1929, North American Vertical Datum of 1988, or Mean Sea Level).

Flood Hazard Area – Area shown on a map to be inundated by a flood of a given magnitude.

Flood Information Tool (FIT) – HAZUS-MH tool designed to process and convert locally available flood information to data that can be used by the HAZUS-MH Flood Module. The FIT is a system of instructions, tutorials, and GIS analysis scripts. When provided with user-supplied inputs (for example, ground

elevations, flood elevations, and floodplain boundary information), the FIT calculates flood depth and elevation for riverine and coastal flood hazards.

Flood Insurance Rate Map (FIRM) – Map of a community, prepared by FEMA, which shows both the special flood hazard areas and the risk premium zones applicable to the community.

Flood Insurance Study (FIS) – A study that provides an examination, evaluation, and determination of flood hazards and, if appropriate, corresponding water surface elevations in a community or communities.

Floodplain – Any land area, including a watercourse, susceptible to partial or complete inundation by water from any source.

Flood Polygon – A Geographic Information System (GIS) vector file outlining the area exposed to the flood hazard. HAZUS-MH generates this polygon at the end of the flood computations in order to analyze the inventory at risk.

Frequency – A measure of how often events of a particular magnitude are expected to occur. Frequency describes how often a hazard of a specific magnitude, duration, and/or extent typically occurs, on average. Statistically, a hazard with a 100-year recurrence interval is expected to occur once every 100 years on average, and would have a 1 percent chance – its probability – of happening in any given year. The reliability of this information varies depending on the kind of hazard being considered.

Geographic Information Systems (GIS) – A computer software application that relates data regarding physical and other features on the earth to a database to be used for mapping and analysis.

GIS Shape Files – A type of GIS vector file developed by ESRI for its ArcView software. This type of file is comprised of a table and a graphic. The records in the table are linked to corresponding objects in the graphic.

Hazard – A source of potential danger or an adverse condition that can cause harm to people or cause property damage. For this risk assessment, priority hazards were identified and selected for the pilot project effort. A natural hazard is a hazard that occurs naturally (such as flood, wind, and earthquake). A man-made hazard is one that is caused by humans (for example, a terrorist act or a hazardous material spill). Hazards are of concern if they have the potential to harm people or property.

Hazard Identification – The process of identifying hazards that threaten an area.

Hazards of Interest – Hazards considered most likely to impact a community based on frequency, severity, or other factors such as public perception. These are identified using available data and local knowledge.

Hazardous Materials Sites – Facilities housing industrial and hazardous materials, such as corrosives, explosives, flammable materials, radioactive materials, and toxins.

Hazard Mitigation – Sustained actions taken to reduce or eliminate the long-term risk and effects that can result from the occurrence of a specific hazard. For example, building a retaining wall can mitigate potential hazards.

Hazard Mitigation Plan – A collaborative document in which hazards affecting the community are identified, vulnerability to hazards are assessed, and consensus is reached on how to minimize or eliminate the effects of these hazards.

Hazard Profile – A description of the physical characteristics of a hazard, including a determination of various descriptors including magnitude, duration, frequency, probability, and extent. In most cases, a community can most easily use these descriptors when they are recorded and displayed as maps.

Hazard Risk Gauge – The graphic icon used during the initial planning process to convey the relative risk of a given hazard in the study area. The scale ranges from green, indicating relatively low or no risk, to red, indicating severe risk.

HAZUS (Hazards U.S.) – A GIS-based nationally standardized earthquake loss estimation tool developed by FEMA. HAZUS was replaced by HAZUS-MH (see below) in 2004.

HAZUS-MH (Hazards U.S. - Multi-Hazard) – A GIS-based nationally standardized earthquake, flood, and wind loss estimation tool developed by FEMA. The purpose of the Louisville Metro pilot project was to demonstrate and implement the use of HAZUS-MH to support risk assessments.

HAZUS-MH Provided Data – The databases included in the HAZUS-MH software that allow users to run a preliminary analysis without collecting or using local data.

HAZUS-MH Risk Assessment Methodology – This analysis uses the HAZUS-MH models (earthquake, wind (hurricane) and flood) to analyze potential damages and losses.

High Potential Loss Facilities – Facilities that would have a high loss associated with them, such as nuclear power plants, dams, and military installations.

Infrastructure – The public services of a community that have a direct impact on the quality of life. Infrastructure includes communication technology such as phone lines or Internet access, vital services such as public water supplies and sewer treatment facilities, transportation system (such as airports, heliports, highways, bridges, tunnels, roadbeds, overpasses, railways, bridges, rail yards, depots; and waterways, canals, locks, seaports, ferries, harbors, dry docks, piers and regional dams).

Intensity – A measure of the effects of a hazard occurring at a particular place.

Interface – A fire hazard term used to describe areas where homes and other structures have been built on or adjacent to forest and range lands. It is an intermingling of man-made structures with natural cover at various degrees of growth and complexity.

Inventory – The assets identified in a study region. The inventory assessment addresses what can be lost when a disaster occurs, that is, what community resources are at risk. Assets include people, buildings, transportation, and other valued community resources.

Level 1 Analysis – A HAZUS-MH analysis that yields a rough estimate or preliminary analysis based on the HAZUS-MH provided nationwide databases. A Level 1 analysis is a useful way to begin the risk assessment process and prioritize high-risk communities without collecting or using local data.

Level 2 Analysis – A HAZUS-MH analysis that requires the input of additional or refined inventory data and hazard maps that will produce more accurate risk and loss estimates. Assistance from local emergency management personnel, city planners, GIS professionals, and others may be necessary for this level of analysis.

Level 3 Analysis – A HAZUS-MH analysis that yields the most accurate estimate of loss and typically requires the involvement of technical experts such as structural and geotechnical engineers who can modify loss parameters based on the specific conditions of a community. This level analysis will allow users to supply their own techniques to study special conditions such as dam breaks and tsunamis. Engineering and other expertise is needed at this level.

Lifelines – Critical facilities that include utility systems (potable water, wastewater, oil, natural gas, electric power facilities, and communication systems) and transportation systems (airways, bridges, roads, tunnels, and waterways.

Loss Estimation – The process of assigning hazard-related damage and loss estimates to inventory, infrastructure, lifelines, and population data. HAZUS-MH can estimate the economic and social loss for specific hazard occurrences. Loss

estimation is essential to decision making at all levels of government and provides a basis for developing mitigation plans and policies. It also supports planning for emergency preparedness, response, and recovery.

Lowest Floor – Under the NFIP, the lowest floor of the lowest enclosed area (including basement) of a structure. For the HAZUS-MH flood model, this information can be used to assist in assessing the damage to buildings.

Magnitude – A measure of the strength of a hazard occurrence. The magnitude (also referred to as severity) of a given hazard occurrence is usually determined using technical measures specific to the hazard. For example, ranges of wind speeds are used to categorize tornados.

Magnitude (*M*) – A measure of earthquake size; the amount of energy released by an earthquake. Energy release increases 30 times for each integer on the scale. Moment Magnitude is a direct measure of energy and is a more accurate measure of the true strength or intensity of an earthquake.

Major Disaster Declarations – Post-disaster status requested by a state's governor when local and state resources are not sufficient to meet disaster needs. It is based on the damage assessment, and an agreement to commit state funds and resources to the long-term recovery. The event must be clearly more than the state or local government can handle alone.

Mean Return Period (MRP) – The average period of time, in years, between occurrences of a particular hazard (equal to the inverse of the annual frequency of exceedance).

Mitigation Plan – A plan that documents the process used for a systematic evaluation of the nature and extent of vulnerability to the effects of natural hazards typically present in a state or community. The plan includes a description of actions to minimize future vulnerability to hazards. This plan should be developed with local experts and significant community involvement.

National Flood Insurance Program (NFIP) – Federal program created by Congress in 1968 that makes flood insurance available in communities that enact minimum floodplain management regulations in 44 Code of Federal Regulations (CFR) §60.3.

National Weather Service (NWS) – Organization that prepares and issues flood, severe weather, and coastal storm warnings and can provide technical assistance to Federal and state entities in preparing weather and flood warning plans.

Occupancy Classes – Categories of buildings used by HAZUS-MH (for example, commercial, residential, industrial, government, and "other").

Parametric Model – A model relating to or including the evaluation of parameters. HAZUS-MH uses parametric models that address different parameters for hazards such as earthquake, flood, and wind (hurricane). For example, parameters considered for the earthquake hazard include soil type, peak ground acceleration, building construction type, and others.

Peak Ground Acceleration (PGA) – PGA is the movement experienced by a particle on the ground during a seismic event.

Pilot Project – In this case, a project sponsored by FEMA to support the implementation of studies conducted in coordination with communities. The project focuses on demonstrating the value and benefits of using HAZUS-MH for the risk assessment portion of all-hazard mitigation plans required by the DMA 2000. The projects demonstrate the value of using HAZUS-MH to evaluate and analyze natural hazards that a number of state and local communities might address in their planning process. The pilot projects demonstrate that HAZUS-MH can provide defensible cost and loss estimates using the engineering and scientific risk calculations included in the software.

Planimetric – Maps that indicate only man-made features like buildings.

Planning – The act or process of making or carrying out plans; the establishment of goals, policies and procedures for a social or economic unit.

Presidential Disaster Declaration – A post-disaster status that puts into motion long-term federal recovery programs, some of which are matched by state programs, and designed to help disaster victims, businesses, and public entities in the areas of human services, public assistance (infrastructure support), and hazard mitigation. If declared, funding comes from the President's Disaster Relief Fund and disaster aid programs of other participating federal agencies.

Probability – A statistical measure of the likelihood that a hazard event will occur.

Q3 Flood Zone Data – FEMA flood data that delineate the 100- and 500-year flood zone boundaries. The Q3 Flood Data are digital representations of certain features of FEMA's Flood Insurance Rate Map (FIRM) product, intended for use with desktop mapping and GIS technology.

Recurrence Interval – The average time between the occurrence of hazards of similar size in a given location. This interval is based on the probability that the given event will be equaled or exceeded in any given year.

Repetitive Loss Property – A property that is currently insured for which two or more NFIP losses (occurring more than ten days apart) of at least $1,000 each have been paid within any 10-year period since 1978.

Replacement Value – The cost of rebuilding or repairing a structure. This cost is usually expressed in terms of cost per square foot and reflects the present-day cost of labor and materials to construct a building of a particular size, type, and quality.

Risk – The estimated impact that a hazard would have on people, services, facilities, and structures in a community; the likelihood of a hazard occurring and resulting in an adverse condition that causes injury or damage. Risk is often expressed in relative terms such as a high, moderate, or low likelihood of sustaining damage above a particular threshold due to occurrence of a specific type of hazard. Risk also can be expressed in terms of potential monetary losses associated with the intensity of the hazard.

Risk Assessment – A methodology used to assess potential exposure and estimated losses associated with priority hazards. The risk assessment process includes four steps: (1) identifying hazards, (2) profiling hazards, (3) conducting an inventory of assets, and (4) estimating losses. This pilot project report documents this process for selected hazards addressed as part of the pilot project.

Risk Factors – Characteristics of a hazard that contribute to the severity of potential losses in the study area.

Riverine – Of or produced by a river (for example, a riverine flood is one that is caused by a river overflowing its banks).

Scale – A proportion used in determining a dimensional relationship; the ratio of the distance between two points on a map and the actual distance between the two points on the earth's surface.

Scour – Removal of soil or fill material by the flow of floodwaters. This term is frequently used to describe storm-induced, localized, conical erosion around pilings and other foundation supports where the obstruction of flow increases turbulence.

Stafford Act – The Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law (PL) 100-107 was signed into law on November 23, 1988. This law amended the Disaster Relief Act of 1974, PL 93-288. The Stafford Act is the statutory authority for most Federal disaster response activities, especially as they pertain to FEMA and its programs.

State Hazard Mitigation Officer (SHMO)– The representative of state government who is the primary point of contact with FEMA, other state, and Federal agencies, and local units of government in the planning and implementation of pre- and post-disaster mitigation activities.

Structure – Something constructed (for example, a residential or commercial building).

Study Area – The geographic unit for which data are collected and analyzed. A study area can be any combination of states, counties, cities, census tracts, or census blocks. The study area definition depends on the purpose of the loss study and in many cases will follow political boundaries or jurisdictions such as city limits.

Substantial Damage – Damage of any origin sustained by a structure in a SFHA, for which the cost of restoring the structure to its pre-hazard event condition would equal or exceed 50 percent of its pre-hazard event market value.

Topographic – Map that shows natural features and indicates the physical shape of the land using contour lines based on land elevation. These maps also can include manmade features (such as buildings and roads).

Transportation Systems – One of the lifeline system categories. This category includes airways (airports, heliports), highways, bridges, tunnels, roadbeds, overpasses transfer centers, railways (tracks, tunnels, bridges, rail yards, depots), and waterways (canals, locks, seaports, ferries, harbors, dry docks, piers).

Utility Systems – One of the lifeline system categories. This category includes potable water, wastewater, oil, natural gas, electric power facilities, and communication systems.

Vulnerability – Description of how exposed or susceptible an asset is to damage. This term depends on an asset's construction, contents, and the economic value of its functions. Like indirect damages, the vulnerability of one element of the community is often related to the vulnerability of another. For example, many businesses depend on uninterrupted electrical power. If an electric substation is flooded, it will affect not only the substation itself, but a number of businesses as well. Often, indirect effects can be much more widespread and damaging than direct ones.

Vulnerability Assessment – Evaluation of the extent of injury and damage that may result from a hazard event of a given intensity in a given area. The vulnerability assessment should address impacts of hazard occurrences on the existing and future built environment.

Watershed – Area of land that drains down gradient (from areas of higher land to areas of lower land) to the lowest point; a common drainage basin. The water moves through a network of drainage pathways, both underground and on the surface. Generally, these pathways converge into streams and rivers, which

become progressively larger as the water moves downstream, eventually reaching an estuary, lake, or ocean.

Windstorm – A storm characterized by high wind velocities.

Zone – A geographical area shown on a National FIRM that reflects the severity or type of flooding in the area.